



ATTACHMENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of: )  
Diego BRITA, et al. )  
Serial Number: 10/537,079 )  
Group Art Unit: 1793 )  
Filed: June 1, 2005 )  
Examiner: J.E. MCDONOUGH )  
For: MAGNESIUM DICHLORIDE-BASED ADDUCTS )  
AND CATALYST COMPONENTS OBTAINED )  
THEREFROM )

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. §1.132

I, Diego Brita hereby declare that:

1. I am Diego Brita.
2. THAT in July 1995, I received a doctorate degree in Chemistry from the University of Naples in Italy.
3. THAT in September 1997, I became an employee of Montell Polyolefins, located in Ferrara, Italy, which is now Basell Poliolefine Italia Srl.

4. THAT I have worked, and continue to work, as a researcher for Basell Poliolefine Italia Srl and former companies for over 12 years in the field of Ziegler-Natta catalyst research, and I am an inventor on at least 18 patents, and an author of one publication in this area.

5. THAT I am a co-inventor of the above-identified U.S. Patent Application Serial No. 10/537,079 (herein referred to as "the present application") entitled "MAGNESIUM DICHLORIDE-BASED ADDUCTS AND CATALYST COMPONENTS OBTAINED THEREFROM," which is the U.S. National Stage of International Application PCT/EP2003/013818, filed November 25, 2003, and which claims priority to European Patent Application Nos. 02080616.2 and 03101357.6, filed December 18, 2002 and May 14, 2003, respectively, and U.S. Provisional Patent Application Nos. 60/435,195 and 60/482,697, filed December 20, 2002 and June 26, 2003, respectively, and I am familiar with the disclosure and claims of the present application.

6. THAT U.S. Patent 6,034,025 (herein referred to as "Yang, et al.") discloses the formation of solutions between  $MgCl_2$ , a Lewis base, a mixture of at least two alcohols, and a hydrocarbon solvent, which cannot be descriptive of the solid adducts comprising the specific molar ratios claimed in the present application. In fact, a solid product is obtained in Yang, et al. by reacting the aforementioned solution with a transition metal halide compound, which is preferably a titanium halide compound and is known to be reactive with alcohols, and which would subsequently result in a dealcoholated solid product that would not have the currently claimed molar ratios, including the currently claimed alcohol ratio.

7. That in order to confirm what is stated above in section 6, a reproduction of steps (i) and (ii) described in Example 1 of Yang, et al. was carried out under my supervision, which is described in ATTACHMENT B. In particular, by following the process described in Example 1 in Yang, et al., a solid adduct was obtained in which the molar alcohol content was much lower than the molar alcohol content of the present claims.

8. THAT U.S. Patent 4,829,034 (herein referred to as "Iiskolan, et al.") generally discloses adducts having  $MgCl_2$ , an alcohol, such as methanol or ethanol, and an electron donor. However, the only explicitly described adducts comprise  $MgCl_2$ , ethanol, and diisobutylphthalate, which is an aromatic bicarboxylic acid ester and not a  $C_1$ - $C_{10}$  aliphatic carboxylic acid ester.

9. THAT the explicitly described adducts disclosed in Iiskolan, et al., which have about 3 moles of alcohol per mole of  $MgCl_2$  and diisobutylphthalate as internal donor, provide catalysts having specific activities (Kg/gcat/h) ranging from 2.3 (Example 1) to 3.25 (Example 2), while using a slurry polymerization technique.

10. THAT it is known in the field of propylene polymerization technology that by passing from a slurry polymerization technique to liquid propylene (bulk) polymerization technique, under substantially similar conditions, the catalyst polymerization activity is approximately tripled in effect with an increased monomer concentration, and therefore the activity of Example 1 and Example 2 of Iiskolan, et al. would correspond, in liquid propylene (bulk) polymerization techniques, to approximately 6.9 Kg/gcat/h and approximately 9.75 Kg/gcat/h,

respectively.

11. THAT when the currently claimed adducts having from 1.4 mole to 2.3 moles of alcohol are used with diisobutylphthalate as an internal donor in liquid propylene (bulk) polymerization techniques, the resultant catalysts have specific activities (Kg/gcat/h) ranging from 16 kg to 32.65 kg of polypropylene per gram of titanium, whereas the catalysts of Iiskolan, et al. that have diisobutylphthalate present have much lower specific activities.

12. THAT the currently claimed solid adducts unexpectedly comprise higher activities in proportion to the amount of alcohol present in the adducts than the adducts disclosed in Iiskolan, et al., and that one of ordinary skill in the art would not have arrived at the currently claimed solid adducts having unexpectedly higher activities from the general disclosure of Iiskolan, et al.

13. THAT the statement above in section 12 can be evidenced by the results in Table 1 in Applicant's specification. In particular, when the alcohol content in the currently claimed adducts is relatively low (i.e., less than about 1 mole per mole of  $MgCl_2$ ), the adducts have specific activities similar to Iiskolan, et al.; however, the activities are produced by using adducts having much lower amounts of alcohol present, which is unexpected. Alternatively, when higher amounts of alcohol are used in the currently claimed adducts (i.e., more than about 1 mole but equal to or less than 2.5 moles per mole of  $MgCl_2$ ), the adducts have specific activities much higher than the activities disclosed in Iiskolan, et al., even though the adducts of Iiskolan, et al. have higher molar amounts of alcohol present.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the present application or any patent resulting there from.

Signed this 3th day of March, 2010

A handwritten signature in dark ink, appearing to read "Diego Brind", written over a horizontal line.

[NAME OF DECLARANT]

## ATTACHMENT B

### Preparation of a solid catalyst according to U.S. Patent 6,034,025, Example 1, step (i) and (ii).

All operations were performed by using dried solvents and by working under nitrogen atmosphere.

In a 500 ml round bottom flask, equipped with mechanical stirrer, anhydrous Magnesium chloride (10.7 g; 0.112 mol) and toluene (320 ml), were introduced. Under continuous stirring, at the temperature of 22°C, 21.4 ml of THF (tetrahydrofuran) were added, followed by the dropping of 20 ml of n-butanol and 0.28 ml of methanol. The temperature was then raised to reach 105°C and was maintained under continuous stirring for three hours. The solution was then left cooling to 30°C and 14.5 ml of pure  $\text{TiCl}_4$  were slowly fed under stirring. The temperature was raised to 90°C and maintained for 1 hour. After that, the stirring was stopped and the formed solid was left to settle. The liquid was separated at the temperature of about 80°C; the residual solid was washed twice with 100 ml of anhydrous toluene, then twice with 300 ml of i-hexane and finally dried under vacuum.

15 g of white solid product was recovered and analyzed with the following results:

	<u>Weight %</u>	<u>Molar Ratios</u>
Mg,	16.3 wt. %	(1.00)
Cl,	48.0 wt. %	(2.02)
Ti,	0.20 wt. %	(0.006)
BuOH	7.5 wt. %	(0.159)
$\text{CH}_3\text{OH}$	2.3 wt. %	(0.11)
THF	25.0 wt. %	(0.35)